August 7, 2003

MEMORANDUM TO: File

FROM: John Lehning, General Engineer**/RA/**
Plant Systems Branch
Division of Systems Safety and Analysis
Office of Nuclear Reactor Regulation

SUBJECT: REVISED NRC STAFF RESPONSES TO THREE INDUSTRY QUESTIONS ON BULLETIN 2003-01 SUBMITTED PRIOR TO THE JUNE 30, 2003, PUBLIC MEETING

On June 30, 2003, the NRC staff held a public meeting to further clarify the intent of Bulletin 2003-01, "Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized-Water Reactors," and to answer questions from stakeholders regarding the bulletin. Prior to this public meeting (on June 20, 2003) the Nuclear Energy Institute (NEI) forwarded to the NRC a table of questions and comments regarding Bulletin 2003-01 that were collected from various industry stakeholders (accession number ML031970112). In order to provide clear and considered answers to these stakeholder questions, the NRC staff prepared written responses for most of the questions and distributed handouts containing the questions and responses (accession number ML031810371) at the June 30th public meeting. As the NRC staff's responses were not subject to formal review and concurrence, the staff identified on the handouts that the information in the responses does not constitute formal regulatory positions or guidance.

During the June 30th public meeting, and subsequently, the NRC staff identified that three of the responses in the public meeting handout could be revised to further clarify the intent of Bulletin 2003-01 to stakeholders. First, in response to a stakeholder question during the public meeting, the NRC staff committed to providing a response to industry question #58, which was left unanswered in the public meeting handout. Second, in response to a letter on Bulletin 2003-01 from the Union of Concerned Scientists, dated July 1, 2003 (accession number ML031900377), the staff committed to reassessing its answer to industry question #40, to provide additional assurance that addressees are aware that radiation protection requirements should be considered in assessing modifications to barriers in containment, such as wire mesh doors. Third, following discussion with industry stakeholders in a teleconference on July 8, 2003 (teleconference summary accession number ML031940003), the staff agreed to revise its response to industry question #61, to further clarify its expectations regarding the consistency of preemptive and responsive compensatory measures with plants' licensing bases.

To address these stakeholder questions and concerns about the staff's written responses distributed at the June 30th public meeting, the NRC staff has revised its responses to industry questions #40, #58, and #61. The staff's revised responses to these questions are provided in the attachment to this memorandum. The attachment is intended to supplement the responses distributed by the staff at the June 30th public meeting, and this memorandum and its attachment will be included in ADAMS in the public meeting summary package that contains the initial responses.

Contact: John Lehning, NRR/DSSA/SPLB
301-415-3285

Attachment: Revised NRC Staff Responses to Industry Questions #40, #58, and #61
Regarding Bulletin 2003-01

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Regarding Bulletin 2003-01

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Revised NRC Staff Responses to Industry Questions #40, #58, and #61 Regarding Bulletin 2003-01 ATTACHMENT

The staff has provided the responses to the industry comments and questions below to assist licensees in responding to Bulletin 2003-01. The staff's responses are not requirements, formal regulatory guidance, or formal NRC staff positions. As such, the staff's responses do not supersede such requirements and guidance, or other specific guidance which the NRC is developing to evaluate responses to Bulletin 2003-01 or in regard to other GSI-191 regulatory efforts.

#	Topic	Question/Comment	**NRC Response**
40	Comp Action	**Ensuring containment drainage paths are unblocked** What does 'unblocked' mean for drainage paths? Is this referring to normal operation, such as doors, gates, or barriers? Wire Mesh rad gates and scuppers permit flow, but not certain debris. Although drainage through these is not 'blocked' it could become a choke point post-LOCA, but an evaluation is needed to determine potential.	The example interim compensatory measures suggested in the bulletin include ensuring that debris is not currently restricting drainage flowpaths. In addition, licensees may also consider measures related to wire mesh and other debris-interdicting material at flow restrictions within containment. In considering modifications to mesh doors in containment, licensees should consider whether such doors are relied upon for compliance with radiation protection requirements. For example, wire mesh doors leading to loop rooms may be credited as forming part of a locked radiation area boundary. The NRC staff believes that licensees that presently control access to high radiation areas at power by locking screen doors to loop rooms or cubicles could examine alternative controls if reactor safety could be compromised by the retention of water inventory due to debris blockage at these flow restrictions. For example, airlocks serving as the containment access point could themselves form the locked radiation barrier during power operation (it should be noted that such a radiation area boundary change could result in increased or changed RWP requirements for personnel access to control the potential for overexposure). Therefore, the NRC staff concludes that, if reactor safety dictates that high radiation area screen doors should be opened as an interim measure at power to minimize the risk of sump clogging, appropriate alternative radiation area controls could typically be implemented. In the long term, the staff believes that screens and gratings could be integrated into the containment design as remote debris interceptors and still serve as locked high radiation barriers (however, such a modification may not be feasible for licensees as an interim measure).

#	Topic	Question/Comment	NRC Response
58	Option 2 Prior NRC Review and Approval	Some compensatory measures may require prior NRC review and approval. For example, reducing the injection flow rates (prior to transfer to recirculation) could allow more time for debris sources to settle and be a tremendous benefit. One means of reducing injection flow rates is to secure one train of injection. However, subsequently, if this train fails (single active failure) the operators would need to restart the secured train. This would be substitution of manual operator action for automatic action. And it appears would require prior NRC review and approval. Given the risk significance of the sump blockage issue as discussed in Bulletin 2003-01, would the NRC find these types of actions to be acceptable.	A change to a facility, as defined by 10 CFR 50.59, must be evaluated against certain criteria enumerated in 10 CFR 50.59 to determine whether NRC review and approval is necessary prior to its implementation. The NRC staff believes that interim measures, such as securing a train of safety injection, may be risk beneficial for certain PWRs with potentially degraded recirculation sump performance. If a particular licensee finds that such an interim measure is risk beneficial for its facility and plans to implement the measure, the licensee would be responsible for evaluating whether or not the criteria for prior NRC review in 10 CFR 50.59 are met. Whether or not a licensee determines that criteria in 10 CFR 50.59 are met depends on plant-specific configurations and analyses.
61	Option 2 Consistency w/ licensing basis	Some of the compensatory measures listed in the Bulletin are inconsistent with the accident analyses and/or licensing basis of a majority of PWRs.	Bulletin 2003-01 does not intend for licensees to implement compensatory measures that invalidate their safety analyses. If an interim measure is inconsistent with safety analyses, licensees should either (1) not implement the measure or (2) revise the safety analysis (including NRC review and approval if required) and then implement the measure. To provide further clarification, a specific discussion of preemptive and responsive compensatory measures follows. Preemptive compensatory measures are actions to reduce the risk of sump failure that would be taken prior to indications of degraded sump performance. This category includes actions that may be taken during the injection phase and/or recirculation phase (prior to indications of degraded sump performance) of an accident, such as reducing ECCS flows to values that remain above analyzed minimum rates, terminating high-pressure injection if not required, and shutdown of redundant equipment. Some preemptive measures may be consistent with the licensing basis for certain licensees. The implementation of other preemptive measures that may not be analyzed in the current licensing basis would require a revision to the licensing basis (and potentially NRC review and approval) prior to implementation. For any proposed change (as defined in 10 CFR 50.59),

			licensees would be required to address the criteria in 10 CFR 50.59. Responsive compensatory measures are actions taken to reduce the risk of sump failure or its consequences (e.g., loss of core cooling and/or loss of containment cooling) during the recirculation phase of an accident following indications of degraded sump performance and/or impending sump failure. As sump failure is not considered in plants' current licensing bases, it may be warranted for licensees to take appropriate actions in response to indications of likely sump failure, even if the actions are not analyzed in the current licensing basis. An example of such a responsive measure would be switching back to ECCS/CSS injection following sump failure. The implementation of responsive measures may involve revisions to emergency procedures or guidelines, but it is not necessary to revise the Final Safety Analyses Report to include responsive measures for beyond-design-basis occurrences such as sump failure. Although licensees should evaluate any changes for risk benefit, this type of action would not typically require prior NRC approval.